

CLAIMS

Claim 1 An articulating shaft having a proximal end and a distal end, the distal end being bendable by operation of the proximal end, comprising:

an outer member having an axis extending from the proximal end to the distal end, the outer member having a configuration of a tube with a first longitudinal side and a second longitudinal side;

portions of the first longitudinal side define a slot having a first end and a second end wider than the first end;

an inner member disposed within the outer member;

a wedge carried by the inner member and movable within the slot between the first end of the slot and the second end of the slot;

the inner member being operable at the proximal end to move the wedge within the slot and toward the first end of the slot, to bend the outer tube away from the first longitudinal side and toward the second longitudinal side.

Claim 2 The articulating shaft recited in Claim 1, wherein the slot is defined generally radially of the outer member.

Claim 3 The articulating shaft recited in Claim 1, wherein the slot is a first slot and the wedge is a first wedge, and the shaft further comprises:

portions of the second longitudinal side defining a second slot having a first end and a second end wider than the first end;

a second wedge carried by the inner member and movable within the second slot between the first end of the second slot and the second end of the second slot; and

the inner member being operable at the proximal end to move the second wedge within the second slot and toward the first end of the second slot, to bend the outer tube away from the second longitudinal side and toward the first longitudinal side.

- Claim 4 The articulating shaft recited in Claim 1, wherein:
 the tube is a first tube; and
 the inner member has a configuration of the second tube.
- Claim 5 The articulating shaft recited in Claim 4, wherein the first tube is
coaxial with the second tube.
- Claim 6 The articulating shaft recited in Claim 3, wherein the second slot is
a mirror image of the first slot.
- Claim 7 The articulating shaft recited in Claim 3, further comprising:
 a first web disposed between the first end of the first slot and the
 first end of the second slot; and
 a second web disposed between the second end of the first slot
 and the second end of the second slot.
- Claim 8 The articulating shaft recited in Claim 1 wherein the inner member
is rotatable relative to the outer member to move the wedge between the first end
of the first slot and the second end of the first slot.
- Claim 9 An articulating shaft having a proximal end a distal end, the distal
end being bendable by operation of the proximal end, the shaft comprising:
 an outer tubular member having a longitudinal axis;
 an inner tubular member disposed within the outer member and
movable about the axis of the outer member;
 one of the inner tubular member and outer tubular member
including portions defining a slot; and
 a wedge carried by the other of the inner tubular member and the
outer tubular member, the wedge being movable within the slot in an

interference fit with the slot portions to bend the outer member in a direction.

Claim 10 The articulating shaft recited in Claim 9, wherein:
 the slot portions are oriented generally radially of the axis; and
 at least one of the inner tubular member and the outer tubular member is movable by rotation about the axis.

Claim 11 The articulating shaft recited in Claim 9 wherein the portions of the one tubular member are first portions, the slot is a first slot, the wedge is a first wedge, and the direction is a first direction, and the shaft further comprising:
 second portions defining a second slot opposing the first slot in the one tubular member; and
 a second wedge carried by the other tubular member, the second wedge being movable within the second slot to bend the outer tube in a second direction different than the first direction.

Claim 12 The articulating shaft recited in Claim 9, wherein:
 the slot has a first end and a second end; and
 the first end of the slot has a first width and the second end of the slot has a second width greater than the first width.

Claim 13 The articulating shaft recited in Claim 9, wherein:
 the slot is a first slot;
 the inner member includes a pair of wedge pads separated by a second slot having a width; and
 the magnitude of the bend is dependent on the width of the second slot.

Claim 14 An articulating shaft having a proximal end and a distal end, the distal end being bendable by operation of the proximal end, the shaft comprising:

- an outer member having a longitudinal bendable configuration;
- an inner member movable relative to the outer member with a turn of a particular distance and a particular direction to produce in the outer member a bend having a magnitude and direction;
- the magnitude of the bend being dependent on the particular distance of the turn; and
- the direction of the bend being dependent on the particular direction of the turn.

Claim 15 The articulating shaft recited in Claim 14, wherein the inner member is coaxial with the outer member.

Claim 16 The articulating shaft recited in Claim 15 wherein the bend is generally in a plane including the outer member.

Claim 17 The articulating shaft recited in Claim 16 wherein the particular direction of the turn is an angular direction and the particular direction of the bend is a linear direction.

Claim 18 A method for articulating a shaft having a longitudinal configuration with a proximal end and a distal end, the method including the steps of:

- providing a first member with a slot;
- providing a second member with a wedge;
- mounting the second member relative to the first member with the wedge disposed in the slot;
- turning the second member relative to the first member in a first direction to bend the first member in a second direction; and

turning the second member relative to the first member in a third direction to bend the first member in a fourth direction.

Claim 19 The method recited in Claim 18 wherein the first direction and the third direction are angular directions, and the second direction and the fourth direction are linear directions.

Claim 20 The method recited in Claim 19 wherein the third direction is opposite to the first direction and the fourth direction is opposite to the second direction.

Claim 21 The method recited in Claim 20 wherein the wedge is movable in an interference fit with the portions defining the slot.

Claim 22 An articulating shaft having a proximal end and a distal end, comprising:

- a first member movable with one of a slot pattern and a wedge mechanism;

- a second member movable with the other of the slot pattern and the wedge mechanism; and

- the wedge mechanism being movable in the slot pattern by operation of the proximal end of the shaft to bend the distal end of the shaft.

Claim 23 The articulating shaft recited in Claim 22, wherein:

- the slot pattern includes a pair of opposing slots; and

- the wedge mechanism includes a pair of opposing wedges each associated with one of the opposing slots.